William Chargin

git.io/wc • wchargin • wchargin
Computer Science, Cal Poly San Luis Obispo

Please visit my website at git.io/wc for an interactive résumé, and more up-to-date and detailed project descriptions.

Experience

Khan Academy — **Mountain View, CA**
Software Developer Intern (frontend and backend) — *June–September 2015*

- Frontend, backend: added CMS support for thumbnail upload, compositing, storage, and usage; implemented streaks (à la Duolingo).
- Frontend: implemented a new on-site video player to provide greater control over the playback experience (e.g., speed control that persists across sessions, in-video questions).
- Backend: implemented hot loading of JSX and CSS/Less for development; sped up internal publish process by 57%.

Cal Poly Computer Science Department — **San Luis Obispo, CA**
Instructional Student Assistant, Fundamentals of Computer Science II — *Fall 2014–Spring 2015*

- Designed, implemented, tested, and documented a flexible and extensible automated grading system. (See *Projects* below.)
- Created grading scheduler, and integrated with `cron` to create a completely hands-off grading process.

Army High Performance Computing Research Center — **Stanford University**
Student Researcher — *June–August 2014*

- First pre-undergraduate student ever admitted to this research program.
- Developed real-time physics simulations on low-powered portable devices. (See *Projects* below.)
- Received verbal commendation on excellence of research report.

Selected projects

Automated grading system — Bash, Java

- Automatically tests and grades student work for style and correctness, according to customizable and extensible grading modules.
- Grades and archives all student work at assignment due dates, and immediately emails students with helpful feedback.
- Includes tool to efficiently manually investigate failing submissions, to ensure that all grades are accurate.

Real-time portable physics — Java, C++

- At AHPCRC, leveraged extensive existing physics libraries for real-time simulation on Android tablets.
- Simulations: articulated rigid body, cloth, smoke, dynamic paint. Rendering: UV mapped textures, fog.
- Designed novel algorithm to distribute points on a 3D triangulated mesh according to a given density function.
- Designed a system to efficiently (amortized $\mathcal{O}(1)$) simulate arbitrarily complex urban environments.

Advanced computer science curriculum — Java, C, Python

- College-level computer science independent study designed by full-time Microsoft Software Engineer.
- Curriculum included algorithms and data structures; concurrency; dynamic programming; image edge detection; and more.
- Public repository available at github.com/wchargin/apcs; interactive demos therein.

Model United Nations debate moderation system — Java

- Created and deployed an application system that unifies the tools that chairs need to aptly moderate debates.
- Implemented networking across multiple computers to maximize efficiency; separate modes for head chair, director, and rapporteur.
- Deployed system at multiple conferences; system used by dozens of chairs and hundreds of delegates.
- Released as open source; available at wchargin.github.io/kiosk/.

Selected computer languages and systems

Proficient or better in: Python, Java, C; JavaScript, React; Google App Engine; Git; LaTeX, Blender 3D.

Selected academic honors

University Honors Program, Cal Poly SLO. Honors Public Speaking: Best Informative Speaker, Best Persuasive Speaker.

Grade 12 Valedictorian. National Merit Scholar. National AP Scholar. California Scholarship Federation Sealbearer. Inter-Departmental Award (inaugural; created for me). Best Mandarin I Student.

Grade 11 Most Outstanding Math and Science Student. Best Junior in Math. Best Junior in Spanish. Best Junior in History.